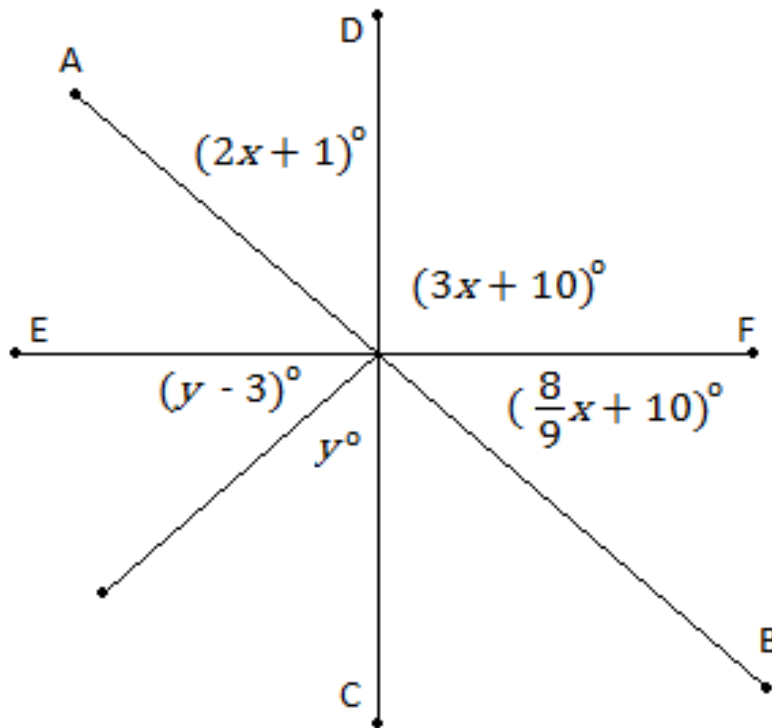


Name: \_\_\_\_\_

Date: \_\_\_\_\_

Per.: \_\_\_\_\_

### 1.7 Introduction to Angles Challenge



$$m\angle AHD =$$

$$m\angle DHF =$$

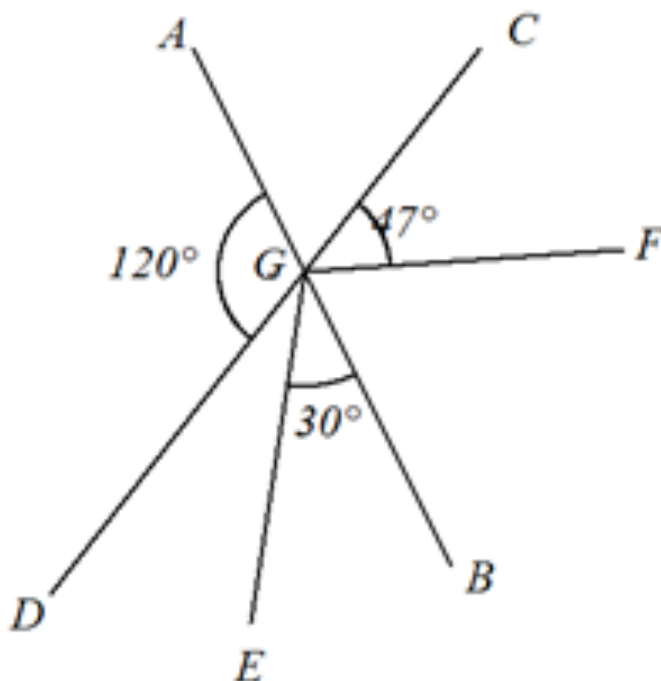
$$m\angle FHB =$$

$$m\angle BHC =$$

$$m\angle CHG =$$

$$m\angle GHE =$$

$$m\angle EHA =$$



$$= m\angle AGC =$$

$$m\angle FGB =$$

$$m\angle EGD =$$

**WLPCS**  
**Geometry**

**Important Definitions:**

Two angles  $\angle AOC$  and  $\angle COB$ , with a common side  $\overrightarrow{OC}$ , are \_\_\_\_\_ if  $C$  belongs to the interior of  $\angle AOB$ .

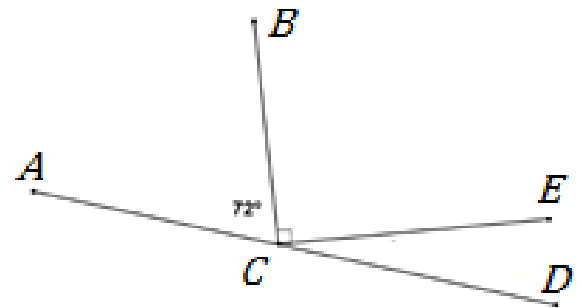
The sum of angles on a straight line is  $180^\circ$ , and two such angles are called a *linear pair*. Two angles are called *supplementary* if the sum of their measures is \_\_\_\_\_; two angles are called *complementary* if the sum of their measures is \_\_\_\_\_. Describing angles as supplementary or complementary refers only to the measures of their angles. The positions of the angles or whether the pair of angles is adjacent to each other is not part of the definition.

**STRAIGHT ANGLE:** If two rays with the same vertex are distinct and collinear, then the rays form a line called a *straight angle*.

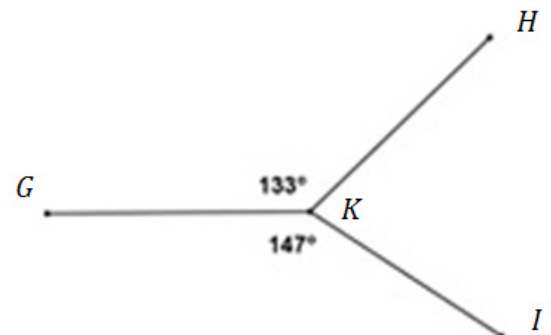
**VERTICAL ANGLES:** Two angles are *vertical angles* (or vertically opposite angles) if their sides form two pairs of opposite rays.

**Examples:**

In the figure, line segment  $AD$  is drawn.  
Find  $m\angle DCE$ .

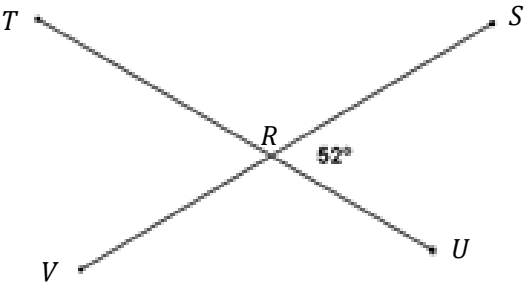


The total measure of adjacent angles around a point is \_\_\_\_\_.  
Find the measure of  $\angle HKI$ .

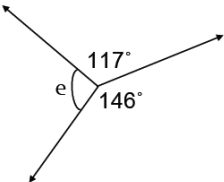
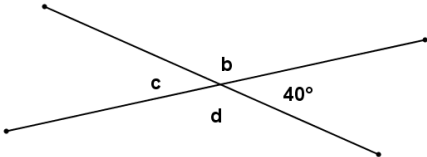
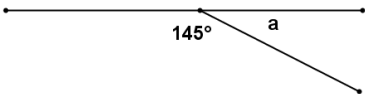


WLPCS  
Geometry

Vertical angles have \_\_\_\_\_ measure. Two angles are vertical if their sides form opposite rays.  
Find  $m\angle TRV$ .



Find the measures of each labeled angle. Give a reason for your solution.



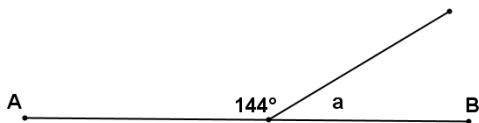
Angle	Angle Measure	Reason
$\angle a$		
$\angle b$		
$\angle c$		
$\angle d$		
$\angle e$		

# WLPCS Geometry

## Exercises

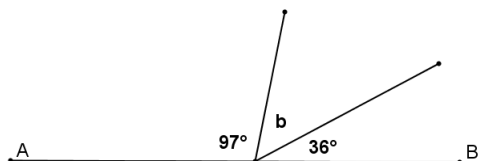
In the figures below,  $\overline{AB}$ ,  $\overline{CD}$ , and  $\overline{EF}$  are straight line segments. Find the measure of each marked angle, or find the unknown numbers labeled by the variables in the diagrams. Give reasons for your calculations. Show all the steps to your solutions.

1.



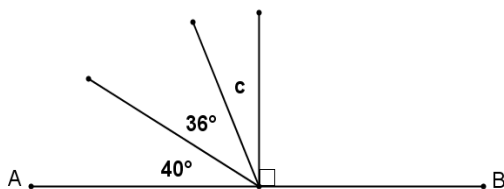
$$m\angle a = \underline{\hspace{2cm}}$$

2.



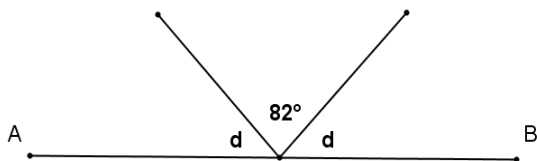
$$m\angle b = \underline{\hspace{2cm}}$$

3.



$$m\angle c = \underline{\hspace{2cm}}$$

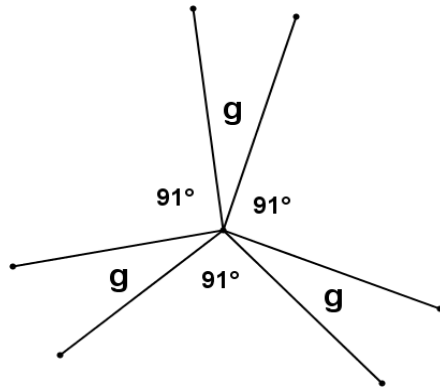
4.



$$m\angle d = \underline{\hspace{2cm}}$$

WLPCS  
Geometry

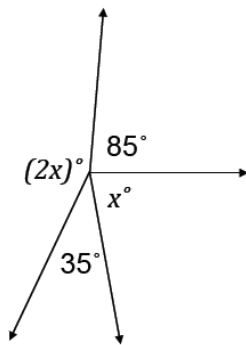
5.



$$m\angle g = \underline{\hspace{2cm}}$$

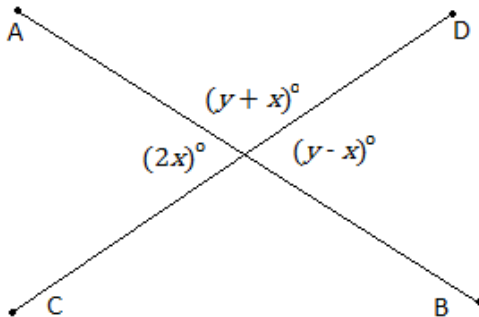
For Exercises 6–12, find the values of  $x$  and  $y$ . Show all work.

6.



$$x = \underline{\hspace{2cm}}$$

7.

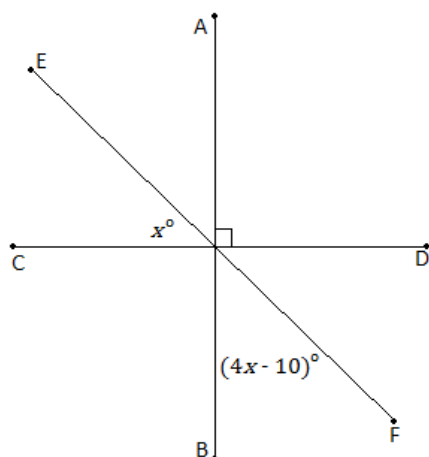


$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

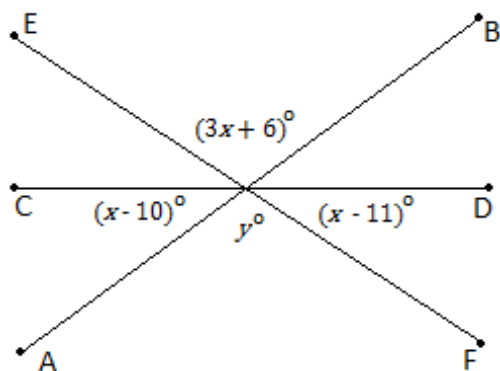
WLPCS  
Geometry

8.



$$x = \underline{\hspace{2cm}}$$

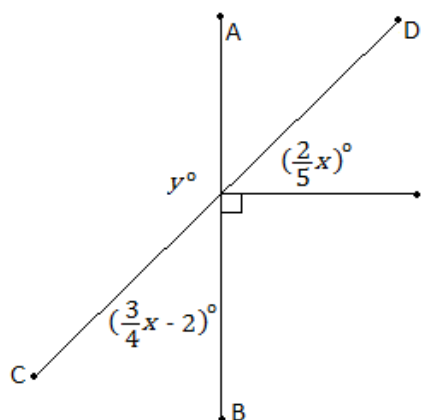
9.



$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

10.



$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$